

# CIMMYT and INDIA



## Brief History

CIMMYT's partnership with the Indian government, spanning over more than five decades, is one of the longest and most productive in the world. The collaboration started with the visit of Nobel Laureate Dr. Norman E. Borlaug in 1963 to usher in the Green Revolution in active partnership with the Government of India.

Established in 2001, the CIMMYT-India office currently has 17 international and 110 national staff spread across Delhi, Haryana, Punjab, Uttar Pradesh, Bihar, Madhya Pradesh, Maharashtra, Odisha, and Telangana. In 2011, the Indian Council of Agricultural Research (ICAR) and CIMMYT launched a new collaborative initiative, the Borlaug Institute for South Asia (BISA) which is dedicated to food, nutrition, and livelihood security as well as environmental rehabilitation in South Asia.

Given the newer challenges of climate change in the economically fragile agro eco-systems, the partnership between India and CIMMYT plays a pivotal role in developing improved wheat and maize varieties with climate smart and conservation agriculture-based practices.

## Collaborations

The CGIAR Research Programs on Maize (MAIZE), Wheat (WHEAT) and Climate Change, Agriculture and Food Security (CCAFS) were the cornerstone of CIMMYT's ongoing collaboration with ICAR and national partners. This is being further strengthened in One CGIAR.



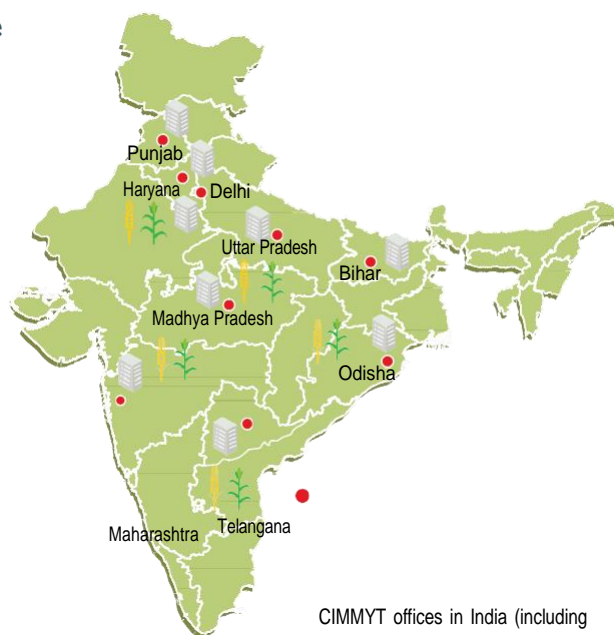
## Maize and Wheat Science for improved livelihoods

The International Maize and Wheat Improvement Center, widely known by its Spanish acronym CIMMYT, works with hundreds of partners throughout the developing world to improve livelihoods and foster more productive, sustainable maize and wheat farming systems. Through collaborative research, partnerships, and training, CIMMYT helps to build and strengthen a new generation of national agricultural research and extension services in maize and wheat growing nations.

Headquartered in Mexico, CIMMYT is a member of CGIAR and is the global leader in publicly funded maize and wheat research and related farming systems. CIMMYT's germplasm bank is home to humanity's largest collection of maize and wheat varieties made freely available to scientists, researchers, and farmers around the world. CIMMYT receives support from national governments, foundations, development banks and other public and private agencies.

## CIMMYT's Contributions to Indian Agriculture

- About 170 wheat varieties from CIMMYT germplasm released.
- More than 200 wheat varieties developed, where CIMMYT lines were used as a parent or grandparent.
- Two biofortified wheat varieties, rich in grain Zinc, were released in 2017, the first release of such varieties in India. Since then, about a dozen biofortified varieties released.
- For the first time, wheat varieties were released for early sowing (October) in India in 2020. This included first >8t/ha wheat variety (DBW 303).
- About a dozen Wheat Blast resistant varieties released.
- Twenty-six maize open pollinated varieties and 8 hybrids released in India. This includes Provitamin-A enriched maize hybrids.
- Conservation agriculture practices like residue management, zero tillage, direct-seeded rice, precision land leveling, water and nutrient efficiency, systems optimization were adopted in the vast Indo-Gangetic plains and other states of India.
- CIMMYT with ICAR, CCAFS and BISA introduced the concept of Climate Smart Agriculture in >1500 villages of Maharashtra, Punjab, Haryana, Bihar, and Madhya Pradesh.
- Facilitated capacity building for about 30,000 stakeholders in India. This includes more than agriculture 2500 scientists based in different institutions of India.



## Key Research Interventions for Present and Future

- Development of high yielding climate resilient wheat and maize germplasm with tolerance to biotic and abiotic stresses including climate change.
- Breeding for biofortified wheat and maize for high nutrition and quality.
- Molecular markers, genomic selection, and high throughput phenotyping to maximize genetic gains and climate resilience.
- Innovative research in use of wild relatives to introduce important traits such as disease resistance, drought tolerance and nutrition.
- Establishment of a maize doubled haploid facility.
- Systems research for sustainable intensification of wheat and maize farming systems based on conservation agriculture.
- Scale appropriate farm mechanization solutions especially for smallholder farmers.
- Precision water and nutrient management practices.
- Developing Climate-Smart Villages to scale up adaptation practices and technologies.
- Cross-cutting agricultural research for social and gender inclusiveness.
- Capacity building for a new generation of researchers.



M.S. Swaminathan (left) and Norman Borlaug (right) in a semi dwarf wheat field with fellow scientists in India.

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